At page 4, please **replace** the paragraph beginning at line 6 and ending at line 12 with the following:

> The severity of fungal infections increases as the immune system becomes more dysfunctional. Fungi are among the most ubiquitous pathogens seen in patients with AIDS; virtually all major fungal pathogens cause disease in HIV-positive patients. The majority of untreated HIV-positive patients experience at least one episode of fungal infection and many fungal infections are AIDS-defining illnesses in HIV-infected individuals (Phillips P. (1999).

REMARKS

Applicants respectfully request reconsideration of the rejections set forth in the Office Action mailed on September 25, 2001. Claims 8-11 have been withdrawn from consideration and have been cancelled herein. Claims 1-7 and 12 have been rejected. Claims 13-18 have been added. Support for the new claims can be found, for example, at page 5. Claims 1-7 and 12-18 are pending.

This amendment is to expedite prosecution and should not be construed as acquiescence in any ground of rejection. Applicants reserve the right to prosecute the originally filed claims in the future. The comments in the Office action are now addressed in turn.

Double Patenting

Claims 1-7 and 12 have been provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-7 and 12 of copending Application No. 09/723,830. Claims 1-7 and 12 of the '830 application were withdrawn from consideration as a result of a Restriction Requirement and will be cancelled in due course. Applicants respectfully submit that upon cancellation of the conflicting claims of the '830 application, this provisional rejection will be overcome.

Objections to Specification

The Office has objected to the specification because of the use of worldwide web addresses on page 3, lines 1 and 21. In accordance with Examiner's request, Applicants have deleted the embedded hyperlink and form of executable code in the specification where indicated above. No new matter has been added. Applicants request that the objection be withdrawn.

The Examiner has also objected to the specification because it recites multiple different genus and/or genus/species combinations that are not italicized. The Examiner maintains that the specification should properly italicize the genus and genus/species of organisms and has requested correction. Applicants acknowledge the objection and elect to defer response until one or more claims in the application are deemed allowable. At that time, Applicants will submit a substitute specification wherein genus and/or genus/species are italicized.

Rejections under 35 U.S.C. § 112, First Paragraph

Written Description

Claim 12 has been rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor had possession of the claimed invention.

As amended, the claim now recites a genus of nucleic acids with at least 90% sequence homology to SEQ ID NO:1 and with the additional functional property of encoding a protein that binds actin. To the extent the rejection still applies to the amended claim, Applicants respectfully traverse.

A claimed genus can be adequately described, e.g., by description of a representative number of species, by actual reduction to practice, by drawings, *or* by disclosing identifying characteristics common to members of the genus. Disclosure of identifying characteristics allows one skilled in the art to envision a sufficient number of members of the genus to describe the invention in such full, clear, and concise terms as to distinguish the claimed invention from other materials and show possession of the invention at the time of filing.

Here, the present claim is directed to a genus of nucleic acids with at least 90% sequence identity to a disclosed sequence, and encoding a protein that binds monomeric actin. Applicants have therefore disclosed *both* a structure characteristic (sequence similarity to SEQ ID NO:1) *and* a functional characteristic (actin binding activity), which are common to the claimed genus and distinguish the genus from other nucleic acids. Variability in the genus is constrained by the requirement that the nucleic acids have 90% or greater identity to SEQ ID NO:1 and by the requirement that the encoded polypeptides have particular functional properties. Moreover, the specification provides assays to confirm the binding activity of the encoded polypeptides to actin monomers. Hence, based on Applicants' disclosure, one skilled in the art could readily define the metes and bounds of the claimed nucleic acids without undue experimentation.

Without acquiescing to the rejection, but rather to expedite prosecution, Applicants have amended the claim herein to address the Examiner's concerns. Applicants request that the rejection be withdrawn.

Rejections under 35 U.S.C. § 112, Second Paragraph

Finally, Claim 5 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the invention. More specifically, the Examiner has expressed concerns regarding the phrase "stringent hybridization conditions."

Applicant appreciate the Examiner's suggestion to amend the claims to include salt and temperatures used for stringent hybridization. Applicants have amended the claims accordingly. Support for the amendment can be found, for example, at pages 8 and 9.

Applicants request that the rejection be withdrawn.

Conclusion

The Applicant respectfully maintains that all pending claims are in condition for allowance. Therefore, the Applicant respectfully requests a Notice of Allowance for this Application from the Examiner. Should any unresolved issues remain, the Examiner is encouraged to contact the undersigned at the telephone number provided below.

Respectfully submitted,

Lauren L. Stevens
Reg. No. 36,691

P.O. Box 778
Berkeley, CA 94704-0778
(650) 961-8300

MARKED UP VERSION OF AMENDED CLAIMS

1. (Amended) An isolated nucleic acid encoding [A. fumigatus] ***A. fumigatus*** cofilin protein, wherein the protein [has the following properties: (i) the protein's activity includes binding to actin; and (ii) the protein has] **comprises a sequence having** greater than 90% amino acid sequence identity to SEQ ID NO:2 as measured using a sequence comparison algorithm **and binds monomeric actin**.

3. (Amended) An isolated nucleic acid sequence of claim 1, wherein the nucleic acid encodes **a protein comprising an amino acid sequence of** SEQ ID NO:2.

4. (Amended) An isolated nucleic acid sequence of claim 1, wherein the nucleic acid [has] **comprises** a nucleotide sequence of SEQ ID NO:1.

5. (Amended) An isolated nucleic acid sequence of claim 1, wherein the nucleic acid sequence [selectively] hybridizes under stringent hybridization conditions to **a nucleic acid having a sequence or complementary sequence of** SEQ ID NO:1**, wherein said stringent hybridization conditions are selected from the group consisting of (1) 0.015 M sodium chloride / 0.0015 M sodium citrate / 0.1% sodium dodecyl sulfate at 50°C; (2) 50% formamide with 0.1% bovine serum albumin / 0.1% Ficoll / 0.1% polyvinylpyrrolidone / 50 mM sodium phosphate buffer at pH 6.5 with 750 mM sodium chloride and 75 mM sodium citrate at 42°C; and (3) 50% formamide, 5X SSC (0.75 M sodium chloride, 0.75 M sodium citrate), 50 mM sodium phosphate (pH 6.8), 0.1% sodium pyrophosphate, 5X Denhardt's solution, 50 μg/mL sonicated salmon sperm DNA, 0.1% sodium dodecyl sulfate and 10% dextran sulfate at 42°C, with washes at 42°C in 0.2 X SSC and 50% formamide at 55°C, followed by a wash of 0.1X SSC containing EDTA at 55°C.**

6. (Amended) An expression vector comprising a nucleic acid encoding [A. fumigatus] ***A. fumigatus*** cofilin protein, wherein the protein [has the following properties: (i) the protein's activity includes binding to actin; and (ii) the protein has] **comprises a sequence having** greater than 90% amino acid sequence identity to SEQ ID NO:2 as measured using a sequence comparison algorithm **and binds monomeric actin**.

12. (Amended) An isolated nucleic acid comprising a sequence which has greater than [80%] **90%** sequence identity with nucleotide SEQ ID NO:1 **and which encodes a protein that binds monomeric actin**.

MARKED UP VERSION OF AMENDED SPECIFICATION

In the Specification:

At page 3, please **replace** the paragraph beginning at line 17 and ending at line 28 with the following:

As the population of immunosuppressed individuals increases, so do the numbers and types of fungal infections noted in these patients. Although candidiasis remains the most common fungal infection in immunosuppressed patients, aspergillosis, zygomycosis, and other infections by filamentous fungi are a major problem for an increasing number of patients (Georgiev, V. St. (1998) Infectious Diseases in Immunocompromised Hosts, CRC Press, Boca Raton, FL; and Fauci, AS. (1998) Emer Infect Dis **[www.cdc.gov/ncidod/eid/vol14no3/fauci.html)].** The endemic mycoses, especially histoplasmosis and coccidiodomycosis, also constitute a risk for patients. At particular risk for such infections are those with AIDS, those having undergone bone marrow or organ transplants, those receiving chemotherapy and those who have had debilitating illness, sever injury, prolonged hospitalization, or long-term treatment with antibacterial drugs (NIAID fact sheet, 1996).

At page 4, please **replace** the paragraph beginning at line 6 and ending at line 12 with the following:

The severity of fungal infections increases as the immune system becomes more dysfunctional. Fungi are among the most ubiquitous pathogens seen in patients with AIDS; virtually all major fungal pathogens cause disease in HIV-positive patients. The majority of untreated HIV-positive patients experience at least one episode of fungal infection and many fungal infections are AIDS-defining illnesses in HIV-infected individuals (Phillips P. (1999) **[http://www.Aspergillus.man.ac.uk/secure/treatment_methods/asper-aids.html)].**